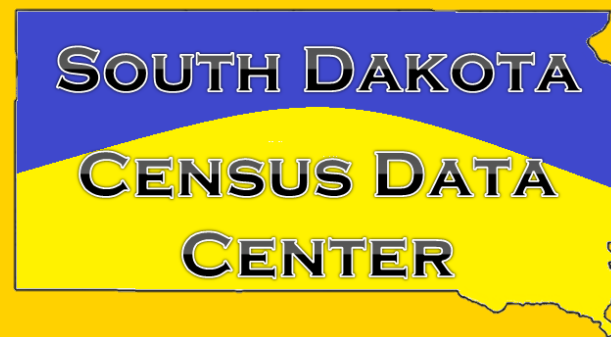




South Dakota State University



# Surveying Indian Country: Avoiding Sampling Bias

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# Instruments under discussion

- American Community Survey (ACS): provides annual (or 3 to 5 year) *profiles* of a sample of the US population such as: income, disability, employment and education.
- Quality of Life Survey: Measured levels of trust and over-all satisfaction within South Dakota communities. Used Census and ACS data to identify populations to sample

# Objectives

- Examine Sampling Frame of Quality of Life Survey
- Did the sampling frame result in an undercount of South Dakota American Indian Population?
- Did the sampling frame undercount South Dakota American Indians due to availability of mailboxes?

# Over and Undercount

- Census Coverage Estimate
  - Homeowner over counted & Renters undercounted
  - Hispanic undercounted & non-Hispanic Whites over counted
  - Black population undercounted
  - Asians, Native Hawaiian, & other Pacific Islanders overcounted
  - For American Indians- Over count reported in 2000 Census, but undercount in 2010 Census

# Reflected in the Literature

- Disproportionately live in hard-to-count circumstances
- Data collection issues revolve around the population's distrust of research or the researcher

# Potential reasons for undercount

- Household sizes for American Indian population may be higher than those reported in the Census with multiple families sharing a residence.
  - Interchangeable use of “household” and “family” in method
- Several American Indian households may share postal addresses.
  - *Common assumption: American Indians refuse to participate in counting attempts due to distrust.*

# The sampling method of the Quality of Life Survey

- 6000 total surveys sent throughout South Dakota
  - 2,000 surveys sent to Rural Areas
  - 2,000 surveys sent to American Indian Majority counties:
    - Buffalo
    - Dewey
    - Jackson
    - Mellette
    - Shannon
    - Todd

# Sampling Buffalo County



- Total population:  
1,912
- American Indian  
Population: 1,607 or  
**84% of the total  
population**



# 52 Randomly Selected Mailing Addresses in Buffalo County

## Fort Thompson Zip Code 57399

- 14 addresses selected for a population of 1,525.
- 96.8% of Fort Thompson residents are American Indian.
- Fort Thompson Residents had a 0.9% chance of selection in a random process

## Gann Valley Zip Code 57431

- 38 addresses selected for a population of 151.
- 92.9% of Gann Valley residents are white.
- Gann Valley Residents had a 25.2% chance of selection in a random process.

# Sampling Dewey County



- Total population:  
5,301
- American Indian  
Population: 3,907 or  
**74.9% of the total  
population**

# 193 Randomly Selected Mailing Addresses In Dewey County

## Eagle Butte Zip Code 57625

- 12 addresses selected for a population of 4,230.
- 87.9 % of Eagle Butte residents are American Indian.
- Eagle Butte residents had a 0.2% chance of selection in a random process

## Timber Lake Zip Code 57656

- 44 addresses selected for a population of 723.
- 57.5% of Timber Lake residents are white .
- Timberlake residents had a 6.1% chance of selection in a random process

# Sampling Jackson County



- Total population:  
3,031
- American Indian  
Population: 1,575 or  
**52% of the total  
population**

# 144 Randomly Selected Mailing Addresses In Jackson County

## Wanblee Zip Code 57577

- 24 addresses selected for a population of 1,211.
- 89.8% of Wanblee residents are American Indian.
- Wanblee residents had a 1.9% chance of selection in a random process

## Kadoka Zip Code 57543

- 23 addresses selected for a population of 870.
- 81.6% of Kadoka residents are white.
- Kadoka residents had a 2.6% chance of selection in a random process

# Sampling Mellette County



- Total Population:  
2,048
- American Indian  
Population: 1,108 or  
**54.1% of the total  
population**

# 119 Randomly Selected Mailing Addresses in Mellette County

## Norris 57560

- 24 addresses selected for a population of 436.
- 79.6% of Norris residents are American Indian.
- Norris residents had a 20.2% chance of selection in a random process

## Wood 57585

- 39 addresses selected for a population of 226.
- 71.7% of Wood residents are White.
- Wood residents had a 32.8% chance of selection in a random process

# Sampling Shannon County



- Total Population:  
13,586
- American Indian  
Population: 13,036 or  
**96% of the total  
population**



# 362 Randomly Selected Mailing Addresses in Shannon County

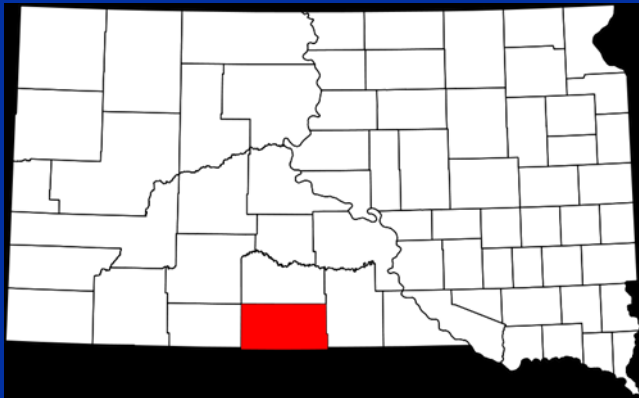
## Pine Ridge 57770

- 3 addresses selected for a population of 5,271.
- 96.3% of Pine Ridge residents are American Indian.
- Pine Ridge residents had a 0.2% chance of selection in a random process

## Kyle 57752

- 24 addresses selected for a population of 554.
- 2.0% of Kyle residents are American Indian .
- Kyle residents had a 4.3% chance of selection in a random process

# Sampling Todd County



- Total Population:  
9,612
- American Indian  
Population: 8,468 or  
**88.1% of the total  
population**

# 579 Randomly Selected Mailing Addresses in Todd County

## **Mission 57555**

- 44 addresses selected for a population of 3,834.
- 96.3% of Mission residents are American Indian.
- Pine Ridge residents had a 3.6% chance of selection in a random process

## **Rosebud 57570**

- 457 addresses selected for a population of 2,064.
- 94.5% of Rosebud residents are American Indian.
- Rosebud residents had a 84% chance of selection in a random process

# Observations in the sampling frame of the Quality of Life Survey

- Survey's were sent at a higher frequency to counties identified as American Indian majority.
- Counties identified as American Indian contained zip codes with white majority populations which tended to receive more surveys than a zip code within the same county with an American Indian Population.
- In some cases, the white majority population had a much lower population, but still received more surveys.

# Availability of Mailboxes

- **Buffalo County**
  - Fort Thompson 1.12 per household
  - Gann Valley 1.52 per household
- **Dewey County**
  - Ridgeview 0.88 per household
  - Whitehorse 1.95 per household
- **Jackson County**
  - Belvidere 0.99 per household
  - Interior 1.46 per household

# Availability of Mailboxes

- **Mellette County**
  - Norris 1.10 per household
  - Wood 0.93 per household
- **Shannon County**
  - Oglala (Meadow) 0.95 per household
  - Kyle 1.12 per household
- **Todd County**
  - Mission 0.97 per household
  - Rosebud 1.38 per household

# Conclusion-Observations

- The Quality of Life Survey was distributed based on the sampling frame established by the Census and American Community Survey.
- Counties identified as American Indian contained zip codes with white majority populations which tended to receive more surveys than a zip code within the same county with an American Indian Population.

# Conclusion-Observations

- In some cases, the white majority population had a much lower population, but still received more surveys
- The zip code areas with the lower rates of inclusion generally had the lowest rates of mail holders per household



Thank You  
Questions  
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